

10/627906

Access DB# 121721**SEARCH REQUEST FORM**

Scientific and Technical Information Center

Requester's Full Name: Arlanda Wall Examiner #: 75663 Date: 5/5/04
 Art Unit: 1752 Phone Number 30 213371 Serial Number: 10/627906
 Mail Box and Bldg/Room Location: REM 1D64 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

 Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Bio sheet Attached

Inventors (please provide full names): _____

Earliest Priority Filing Date: _____

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Please search for irreducible composition of formula 1 (attached). Thank you.

A preferred polymer is that of claim 4.

STAFF USE ONLY

Searcher: EA
 Searcher Phone #: _____
 Searcher Location: _____
 Date Searcher Picked Up: _____
 Date Completed: 5-11-04
 Searcher Prep & Review Time: 10
 Clerical Prep Time: _____
 Online Time: 60

Type of Search

NA Sequence (#) _____
 AA Sequence (#) _____
 Structure (#) (1)
 Bibliographic (and)
 Litigation _____
 Fulltext _____
 Patent Family _____
 Other _____

Vendors and cost where applicable

STN \$141.41
 Dialog _____
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 Other (specify) _____

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FILE 'REGISTRY' ENTERED AT 10:37:36 ON 11 MAY 2004
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FILE 'REGISTRY' ENTERED AT 10:17:56 ON 11 MAY 2004
ACT TRU976/A

L1 STR
L2 963 SEA FILE=REGISTRY SSS FUL L1

FILE 'LREGISTRY' ENTERED AT 10:19:49 ON 11 MAY 2004

L3 STR
L4 STR

FILE 'REGISTRY' ENTERED AT 10:24:00 ON 11 MAY 2004

L5 0 S L3 AND L4 SSS SAM SUB=L2
L6 4 S L3 AND L4 SSS FUL SUB=L2
SAV L6 WAL906/A
L7 5 S (L3 OR L4) SSS SAM SUB=L2

FILE 'CAOLD' ENTERED AT 10:28:31 ON 11 MAY 2004

L8 0 S L6

FILE 'ZCAPLUS' ENTERED AT 10:29:29 ON 11 MAY 2004

L9 3 S L6

FILE 'REGISTRY' ENTERED AT 10:29:51 ON 11 MAY 2004

E POLYACRYLIC/PCT
L10 291041 S E3
L11 10 S L10 AND L2

FILE 'REGISTRY' ENTERED AT 10:30:36 ON 11 MAY 2004

E THIOPHENE/CN
L12 1 S E3
L13 381700 S 16.145.3/RID
L14 117 S L2 AND L13
L15 46 S L14 AND PMS/CI

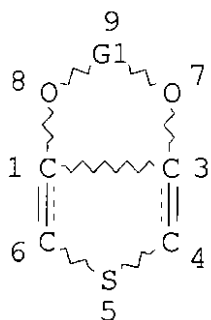
FILE 'ZCAPLUS' ENTERED AT 10:33:10 ON 11 MAY 2004

L16 9 S L11
L17 35 S L15

L18 9 S L16 NOT L9
 L19 27 S L17 NOT (L9 OR L18)
 L20 83663 S LITHO?
 L21 2 S L19 AND L20
 L22 2 S L18 AND L20

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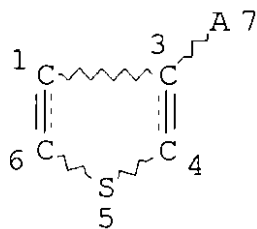
=> d 16 que stat
 L1 STR



REP G1=(1-5) C
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 CONNECT IS E2 RC AT 5
 DEFAULT MLEVEL IS ATOM
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
 RING(S) ARE ISOLATED OR EMBEDDED
 NUMBER OF NODES IS 8

STEREO ATTRIBUTES: NONE
 L2 963 SEA FILE=REGISTRY SSS FUL L1
 L3 STR

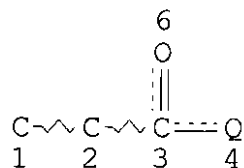


NODE ATTRIBUTES:
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 CONNECT IS E2 RC AT 5

DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 6

STEREO ATTRIBUTES: NONE
L4 STR



NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 5

STEREO ATTRIBUTES: NONE
L6 4 SEA FILE=REGISTRY SUB=L2 SSS FUL L3 AND L4

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SEARCH TIME: 00.00.01

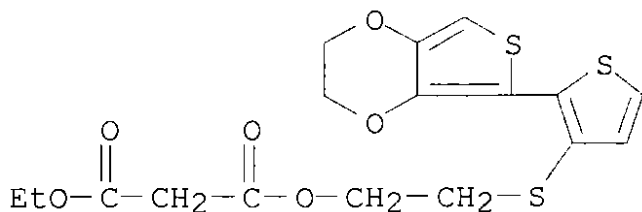
4 ANSWERS

=> file zcaplus
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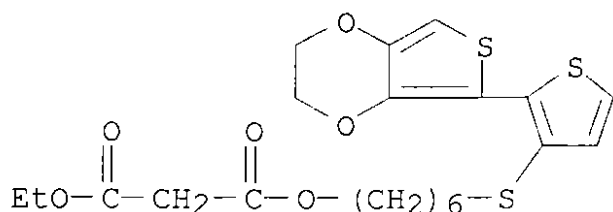
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L9 ANSWER 1 OF 3 ZCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2003:266334 ZCAPLUS
DOCUMENT NUMBER: 138:408246
TITLE: Electrochemical Synthesis of C60-Derivatized
Poly(thiophene)s from Tailored Precursors
AUTHOR(S): Joussetme, Bruno; Blanchard, Philippe;
Levillain, Eric; de Bettignies, Remi; Roncali,

Jean
CORPORATE SOURCE: Groupe Systemes Conjugues Lineaires IMMO, CNRS
UMR 6501 Universite d'Angers, Angers, F-49045,
Fr.
SOURCE: Macromolecules (2003), 36(9), 3020-3025
CODEN: MAMOBX; ISSN: 0024-9297
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB New series of C60-derivatized bithiophenic precursors with low
oxidn. potential were synthesized using the thiolate deprotection
chem. The anal. of the electropolymn. of these compds. shows that
the use of 2-site precursors leads to polymers combining enhanced
conjugation length, faster switching time, and improved stability
under redox cycling. The unsuccessful attempts to identify the
optical signature of the reduced forms of the attached C60 by
spectroelectrochem. suggest that the PT backbone is unstable in the
presence of the C60 anion radical. Preliminary photoelectrochem.
expts. on films deposited on Pt electrode reveal a significant
enhancement of the photocurrent for the C60-derivatized polymer when
compared to a nonsubstituted ref. polymer, indicating that these new
materials are potentially useful for photovoltaic energy conversion.
IT 528870-85-1D, reaction products with C60-fullerene
528870-87-3D, reaction products with C60-fullerene
(prepn. and properties of)
RN 528870-85-1 ZCAPLUS
CN Propanedioic acid, 2-[[2-(2,3-dihydrothieno[3,4-b]-1,4-dioxin-5-yl)-
3-thienyl]thio]ethyl ethyl ester (9CI) (CA INDEX NAME)



RN 528870-87-3 ZCAPLUS
CN Propanedioic acid, 6-[[2-(2,3-dihydrothieno[3,4-b]-1,4-dioxin-5-yl)-
3-thienyl]thio]hexyl ethyl ester (9CI) (CA INDEX NAME)

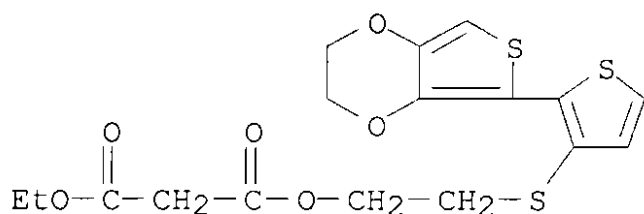


IT 528870-85-1P 528870-87-3P

(prepn. and reaction with fullerene and iodine and DBU)

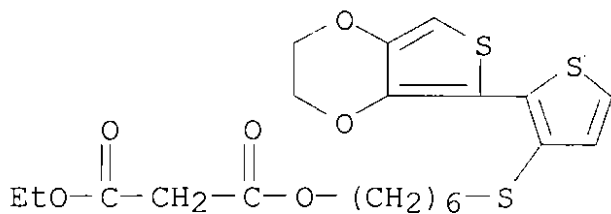
RN 528870-85-1 ZCAPLUS

CN Propanedioic acid, 2-[[2-(2,3-dihydrothieno[3,4-b]-1,4-dioxin-5-yl)-3-thienyl]thio]ethyl ethyl ester (9CI) (CA INDEX NAME)



RN 528870-87-3 ZCAPLUS

CN Propanedioic acid, 6-[[2-(2,3-dihydrothieno[3,4-b]-1,4-dioxin-5-yl)-3-thienyl]thio]hexyl ethyl ester (9CI) (CA INDEX NAME)



IT 528870-85-1D, reaction products with C60-fullerene

528870-87-3D, reaction products with C60-fullerene

(prepn. and properties of)

IT 528870-85-1P 528870-87-3P

(prepn. and reaction with fullerene and iodine and DBU)

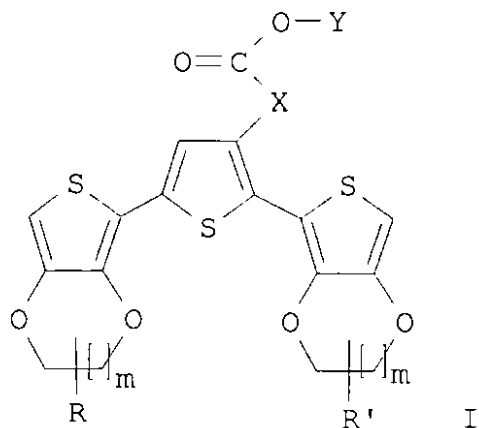
REFERENCE COUNT: 39 THERE ARE 39 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L9 ANSWER 2 OF 3 ZCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2001:868549 ZCAPLUS

DOCUMENT NUMBER: 136:6572
 TITLE: Manufacture of active ester-functionalized
 π -conjugated polymers based on
 3,4-alkylenedioxythiophenes
 INVENTOR(S): Groenendaal, Lambertus; Reuter, Knud; Baeuerle,
 Peter; Meyer, Alexander
 PATENT ASSIGNEE(S): Bayer Aktiengesellschaft, Germany
 SOURCE: PCT Int. Appl., 30 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: German
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001090212	A1	20011129	WO 2001-EP5362	20010510
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
DE 10025309	A1	20011129	DE 2000-10025309	20000523
EP 1294791	A1	20030326	EP 2001-943342	20010510
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR			
JP 2003534418	T2	20031118	JP 2001-587021	20010510
US 2003195330	A1	20031016	US 2002-296570	20021122
PRIORITY APPLN. INFO.:			DE 2000-10025309 A	20000523
			WO 2001-EP5362 W	20010510
OTHER SOURCE(S):	MARPAT 136:6572			
GI				



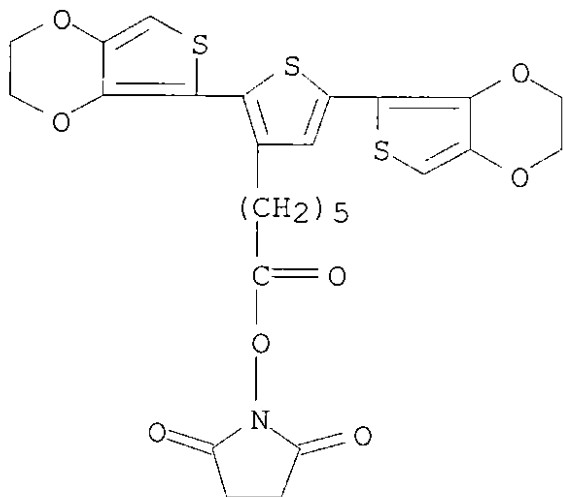
AB The title polymers can be prep'd. by electrochem. polymn. of terthiophene monomers [I; R, R' = H, C1-8 alkyl, C1-8 alkoxy, C1-18 alkylsulfonate, C1-18 alkoxy-sulfonate; X = (CH₂)_{p+q}, (CH₂)_pO(CH₂)_q; Y = alkyl-, aryl-, alkylaryl-substituted or benzo-fused pyrrol(id)inedione; m = 0-5; p, q = 0-10]. The polymers can be modified using the active ester function in order to change their elec. and optical properties. Thus, bromination of 6-(3-thienyl)hexanoic acid with N-bromosuccinimide gave 88% 2,5-dibromo-6-(3-thienyl)hexanoic acid which was esterified (76%) with N-hydroxysuccinimide and the (dibromothienyl)hexanoate ester was coupled with 2-(tributylstannyl)-3,4-ethylenedioxythiophene (prepn. in 69% yield from lithiated 3,4-ethylenedioxythiophene and tributyltin chloride given) in the presence of Pd(PPh₃)₄ and CuO to give 55% monomer I [R, R' = H, X = (CH₂)₅, Y = 2,5-dioxopyrrolidino, m = 1].

IT **350504-00-6P**

(monomer; manuf. of active ester-functionalized π -conjugated polymers based on alkylenedioxythiophenes)

RN 350504-00-6 ZCAPLUS

CN 2,5-Pyrrolidinedione, 1-[[6-[2,5-bis(2,3-dihydrothieno[3,4-b]-1,4-dioxin-5-yl)-3-thienyl]-1-oxohexyl]oxy]- (9CI) (CA INDEX NAME)



IT 350504-00-6P

(monomer; manuf. of active ester-functionalized π -conjugated polymers based on alkylenedioxythiophenes)

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L9 ANSWER 3 OF 3 ZCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2001:355889 ZCAPLUS

DOCUMENT NUMBER: 135:108011

TITLE: Electrochemical properties of porphyrin-functionalized polythiophenes

AUTHOR(S): Schaferling, M.; Bauerle, P.

CORPORATE SOURCE: Department Organic Chemistry II (Organic and Combinatorial Chemistry), Albert-Einstein-Allee 11, University of Ulm, Ulm, 89081, Germany

SOURCE: Synthetic Metals (2001), 119(1-3), 289-290
CODEN: SYMEDZ; ISSN: 0379-6779

PUBLISHER: Elsevier Science S.A.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Electrodes coated with electroactive polymers are promising tools for applications in sensors or redox catalysis. Poly(3,4-ethylenedioxythiophene) (PEDOT) represents a conducting polymer with excellent electrochem. properties. The electropolymn. of an active ester-functionalized precursor mol. leads to PEDOT films which can be post-functionalized with many nucleophilic compds. contg. redox centers or biomols. Unsymm. amino-substituted metalloporphyrins are now easily immobilized on these PEDOT films. The resulting hybrid materials can serve as model compds. for redox

enzymes, as they exhibit a rich electron transfer chem. and are useful in electrocatalysis.

IT 350504-01-7DP, reaction products with amino-substituted porphyrin metal complexes

(electrochem. properties of porphyrin-functionalized polythiophenes)

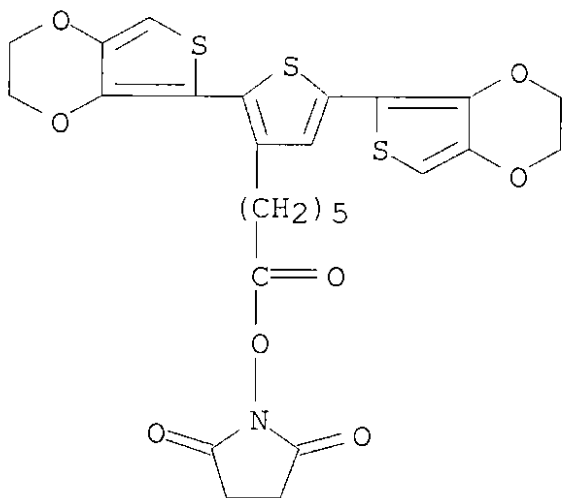
RN 350504-01-7 ZCAPLUS

CN 2,5-Pyrrolidinedione, 1-[[6-[2,5-bis(2,3-dihydrothieno[3,4-b]-1,4-dioxin-5-yl)-3-thienyl]-1-oxohexyl]oxy]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 350504-00-6

CMF C26 H25 N O8 S3



IT 350504-01-7DP, reaction products with amino-substituted porphyrin metal complexes

(electrochem. properties of porphyrin-functionalized polythiophenes)

REFERENCE COUNT:

6

THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

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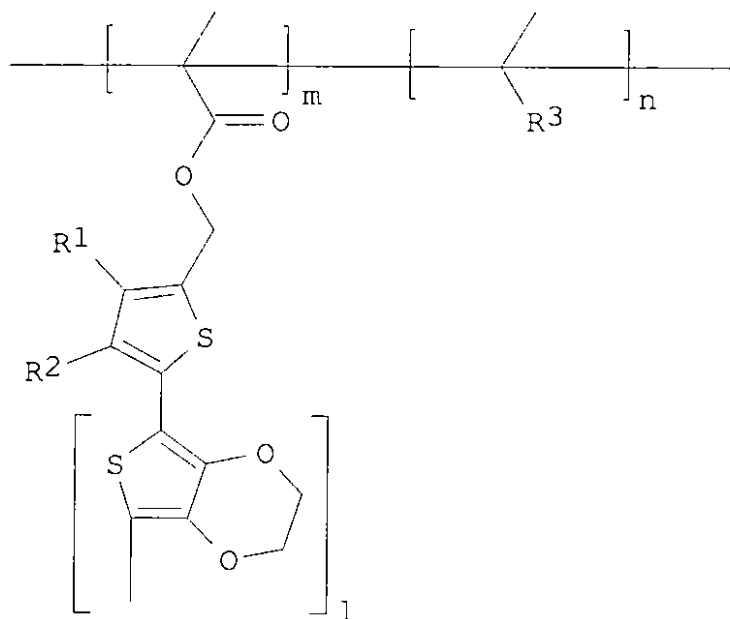
Applicant: Priority Document

L18 ANSWER 1 OF 9 ZCAPLUS COPYRIGHT 2004 ACS on STN

2004:95351 Document No. 140:154461 Polymerizable composition, resist and procedure for electron beam lithography. Elian, Klaus;

Abargues, Rafael (Infineon Technologies A.-G., Germany). Ger.
 Offen. DE 10234527 A1 20040205, 8 pp. (German). CODEN: GWXXBX.
 APPLICATION: DE 2002-10234527 20020725.

GI



I

AB The invention relates to a polymerizable compn. applicable in electron beam lithog., wherein the polymerizable compn. includes a following structural formula I ($m = 0.1-0.9$; $n = 0.1-0.9$; $m+n = 1$; $l = 1-100$; $R_1, R_2 = H, \text{ alkyl, halo, amine, silicon compd., germanium compd.}$; $R_3 = \text{org. eliminatable protection group}$). Furthermore the invention relates to a resist and a procedure using the polymerizable compn. The use of the polymerizable compn. in a resist prevents a charging problem of a substrate during the semiconductor device fabrication.

IT **651724-48-0P**
 (polymerizable compn., resist and procedure for electron beam lithog.)

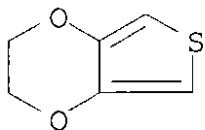
RN 651724-48-0 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1,1-dimethylethyl ester, polymer with 2,3-dihydrothieno[3,4-b]-1,4-dioxin and 2-thienylmethyl 2-methyl-2-propenoate, graft (9CI) (CA INDEX NAME)

CM 1

CRN 126213-50-1

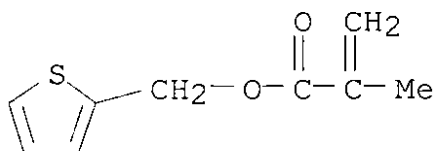
CMF C6 H6 O2 S



CM 2

CRN 105581-49-5

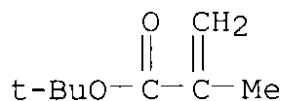
CMF C9 H10 O2 S



CM 3

CRN 585-07-9

CMF C8 H14 O2



IT 651724-48-0P

(polymerizable compn., resist and procedure for electron beam lithog.)

L18 ANSWER 2 OF 9 ZCAPLUS COPYRIGHT 2004 ACS on STN

2003:547222 Document No. 139:253507 The influence of the range of electroactivity and capacitance of conducting polymers on the performance of carbon conducting polymer hybrid supercapacitor. Villers, Dominique; Jobin, Donald; Soucy, Chantal; Cossement, Daniel; Chahine, Richard; Breau, Livain; Belanger, Daniel

(Departement de Chimie, Universite du Quebec a Montreal, Montreal, QC, H3C 3P8, Can.). Journal of the Electrochemical Society, 150(6), A747-A752 (English) 2003. CODEN: JESOAN. ISSN: 0013-4651.

Publisher: Electrochemical Society.

- AB Hybrid electrochem. supercapacitors based on carbon and conducting polymers as neg. and pos. electrodes, resp., were studied. Poly-(3-fluorinatedphenyl)thiophene and poly(ethylenedioxythiophene) derivs. showing various ranges of electrochem. activity and capacitance values were evaluated as pos. electrodes. The mass and capacitance of the polymers have a significant effect on the charge/discharge characteristics and performance of such hybrid electrochem. supercapacitors. The exptl. conditions that should be used to obtain specific charge/discharge curves are presented. A linear charge/discharge curve can be obtained between 0 and 3 V when the wt. of conducting polymer is larger than that of the neg. carbon electrode. In contrast, a battery-like charge/discharge curve is recorded when a smaller conducting polymer wt., relative to that of the carbon electrode, was used.

IT 204905-94-2

(influence of electroactivity and capacitance of conducting polymers on the performance of carbon conducting polymer hybrid supercapacitor)

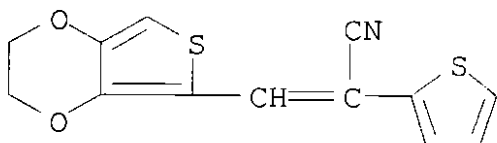
RN 204905-94-2 ZCAPLUS

CN 2-Thiopheneacetonitrile, α -[(2,3-dihydrothieno[3,4-b]-1,4-dioxin-5-yl)methylene]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 204905-93-1

CMF C13 H9 N O2 S2



IT 204905-94-2

(influence of electroactivity and capacitance of conducting polymers on the performance of carbon conducting polymer hybrid supercapacitor)

L18 ANSWER 3 OF 9 ZCAPLUS COPYRIGHT 2004 ACS on STN

2003:173667 Document No. 138:221998 Poly(heteroaromatic) block copolymers with electrical conductivity. Luebben Devito, Sylvia; Elliott, Brian; Wilson, Carolina (TDA Research, Inc., USA). PCT Int. Appl. WO 2003018648 A1 20030306, 55 pp. DESIGNATED STATES: W:

AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2002-US28064 20020903. PRIORITY: US 2001-PV316607 20010831.

AB The block copolymers contain ≥ 1 block of a poly(heteroarom.) polymer and ≥ 2 blocks of a nonconjugated polymer, alternately the poly(heteroarom.) block may contain latent polymerizable groups forming crosslinked networks. The chem. different blocks of the copolymer are covalently bonded to each other in an alternating fashion through an appropriate linkage group. The poly(heteroarom.) block may exist in its neutral or oxidized form, and when in the oxidized form, it assoc. with org. or inorg. counteranions to balance the charge. The poly(heteroarom.) polymer is an intrinsically conducting polymer (IPC), and when in the oxidized form it is elec. conducting. When the IPC block or blocks of the block copolymer are in the doped form, the block copolymer is elec. conducting. Preferably the conducting block copolymers have conductivities 10-6-103 S/cm. Block copolymers are sol. or dispersible in H₂O, ≥ 1 org. solvents, or in a mixt. at a level of .gtorsim.0.1 g/L.

IT 500734-73-6P

(Poly(heteroarom.) block copolymers in oxidized form with high elec. cond.)

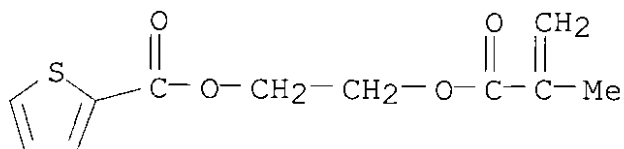
RN 500734-73-6 ZCAPLUS

CN 2-Thiophenecarboxylic acid, 2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl ester, polymer with 2,3-dihydrothieno[3,4-b]-1,4-dioxin, block (9CI) (CA INDEX NAME)

CM 1

CRN 500734-72-5

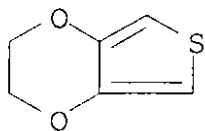
CMF C11 H12 O4 S



CM 2

CRN 126213-50-1

CMF C6 H6 O2 S



IT 500734-77-0P

(triblock; Poly(heteroarom.) block copolymers in oxidized form with high elec. cond.)

RN 500734-77-0 ZCAPLUS

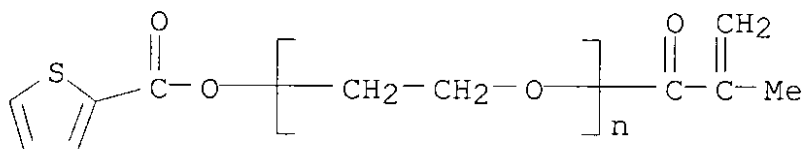
CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-, polymer with α -(2-methyl-1-oxo-2-propenyl)- ω -[2-thienylcarbonyl)oxy]poly(oxy-1,2-ethanediyl), block (9CI) (CA INDEX NAME)

CM 1

CRN 500734-76-9

CMF (C2 H4 O)_n C9 H8 O3 S

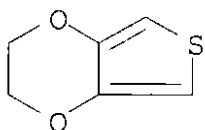
CCI PMS



CM 2

CRN 126213-50-1

CMF C6 H6 O2 S



IT 500734-73-6P

(Poly(heteroarom.) block copolymers in oxidized form with high elec. cond.)

IT 500734-77-0P

(triblock; Poly(heteroarom.) block copolymers in oxidized form with high elec. cond.)

L18 ANSWER 4 OF 9 ZCAPLUS COPYRIGHT 2004 ACS on STN

2003:4983 Document No. 138:81680 Design of a transparent conductive film for use in image display devices and solar cells. Kawamura, Koichi; Takahashi, Miki; Yagihara, Morio; Nakayama, Takao (Fuji Photo Film Co., Ltd., Japan). Eur. Pat. Appl. EP 1271561 A2 20030102, 16 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR. (English). CODEN: EPXXDW. APPLICATION: EP 2002-13991 20020626. PRIORITY: JP 2001-195449 20010627; JP 2001-261052 20010830; JP 2001-325089 20011023.

AB The invention relates to the design of a transparent conductive film with excellent elec. cond. and durability suitable for use in image display devices and solar cells. The conductive film consists of a support onto whose surface ionic groups are introduced. Then, elec. charged conductive fine particles are electrostatically bonded to the ionic groups on the support surface. For example, a polyethylene terephthalate (PET) support film is subjected to oxygen glow treatment and immersed in a sodium styrene sulfonate soln. to coat the surface with ionic groups. The surface-modified support is then immersed in a soln. contg. a dispersion of fine silver particles of approx. 5 nm in diam.

IT 480421-32-7, Acrylic acid-allyl methacrylate-3,4-ethylenedioxythiophene-methacrylic acid graft copolymer (surface modification; design of a transparent conductive film for use in image display devices and solar cells)

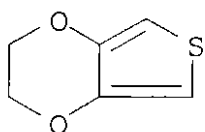
RN 480421-32-7 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, polymer with 2,3-dihydrothieno[3,4-b]-1,4-dioxin, 2-propenoic acid and 2-propenyl 2-methyl-2-propenoate, graft (9CI) (CA INDEX NAME)

CM 1

CRN 126213-50-1

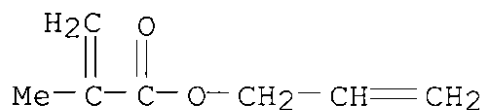
CMF C6 H6 O2 S



CM 2

CRN 96-05-9

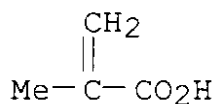
CMF C7 H10 O2



CM 3

CRN 79-41-4

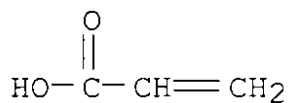
CMF C4 H6 O2



CM 4

CRN 79-10-7

CMF C3 H4 O2



IT 480421-32-7, Acrylic acid-allyl methacrylate-3,4-ethylenedioxythiophene-methacrylic acid graft copolymer (surface modification; design of a transparent conductive film for use in image display devices and solar cells)

L18 ANSWER 5 OF 9 ZCAPLUS COPYRIGHT 2004 ACS on STN
 2002:839719 Document No. 138:173254 Conjugated polymers based on new thienylene - PPV derivatives for solar cell applications. Wagner, Pawel; Aubert, Pierre-Henri; Lutsen, Laurence; Vanderzande, Dirk (Research Group Organic and Polymeric Chemistry, Limburg Universitair Centrum, Diepenbeek, B-3590, Belg.). Electrochemistry

Communications, 4(11), 912-916 (English) 2002. CODEN: ECCMF9.
ISSN: 1388-2481. Publisher: Elsevier Science B.V..

AB Two π -conjugated monomers based on bis-(1-cyano-2-thienyl-vinylene)phenylene derivs. were synthesized by Knoevenagel condensation. Both monomers can form electroactive polymers upon electrochem. oxidn. The withdrawing effect due to the cyano-substituent allows for the reversible n-doping of the polymer. Thus, the band gap E_g was measured using electrochem. techniques and compared with that obtained by UV-visible-NIR spectroscopy. Based on the measured band gap of 1.87 and 1.58 eV, these polymers appear to be interesting candidates for solar-cell applications.

IT 497258-15-8P

(produced by cyclic voltammetry-induced oxidn. of film coated onto PT or ITO glass electrode; produced by cyclic voltammetry-induced oxidn. of film coated onto PT or ITO glass electrode)

RN 497258-15-8 ZCAPLUS

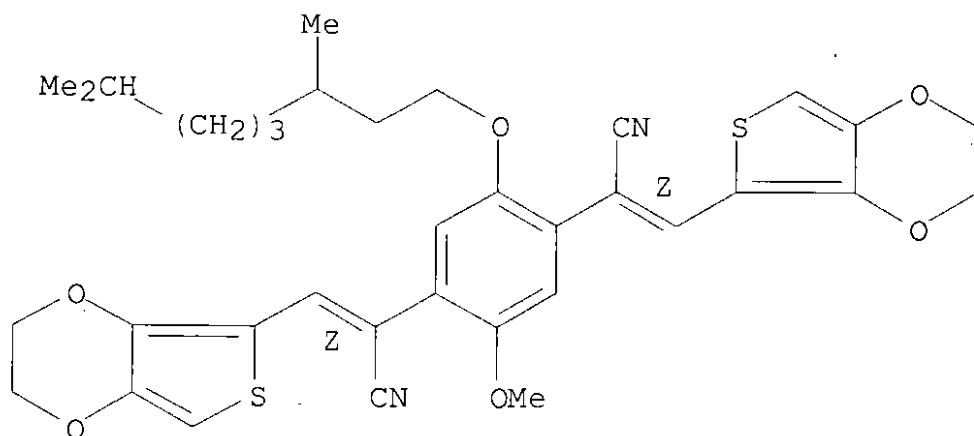
CN 1,4-Benzenediacetonitrile, α,α' -bis[(2,3-dihydrothieno[3,4-b]-1,4-dioxin-5-yl)methylene]-2-[(3,7-dimethyloctyl)oxy]-5-methoxy-, ($\alpha Z,\alpha'Z$)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 497258-12-5

CMF C35 H38 N2 O6 S2

Double bond geometry as shown.



IT 497258-15-8P

(produced by cyclic voltammetry-induced oxidn. of film coated onto PT or ITO glass electrode; produced by cyclic voltammetry-induced oxidn. of film coated onto PT or ITO glass

electrode)

L18 ANSWER 6 OF 9 ZCAPLUS COPYRIGHT 2004 ACS on STN

1999:788487 Document No. 132:129902 Photolithographically-Patterned Electroactive Films and Electrochemically Modulated Diffraction Gratings. Schanze, Kirk S.; Bergstedt, Troy S.; Hauser, Brain T.; Cavalaheiro, Carla S. P. (Department of Chemistry, University of Florida, Gainesville, FL, 32611-7200, USA). Langmuir, 16(2), 795-810 (English) 2000. CODEN: LANGD5. ISSN: 0743-7463. Publisher: American Chemical Society.

AB An overview, with 118 refs., of work directed toward the creation of arbitrary micron-scale patterns of electroactive polymer films by the application of photolithog. A brief overview of work by other groups in the field is followed by a detailed description of work from the own labs which resulted in the development of methods to pattern a variety of different electroactive materials, including Ru- and Os-polypyridine complexes, viologen-based polymers, and a low-potential polythiophene. The discussion provides detail on the photolithog. methodol. The spatially-patterned films are characterized by using optical and SEM. The voltammetric and spectroelectrochem. properties of several of the lithog.-patterned films are also presented. Finally, photolithog. is applied to fabricate electrochromic optical diffraction gratings. The diffraction efficiency of these electroactive gratings can be modulated by an electrochem. stimulus. The properties and mechanism for operation of the electrochromic gratings are described.

IT 255818-90-7 255818-91-8

(photolithog. of electroactive polymer films for creation of arbitrary micron-scale patterns)

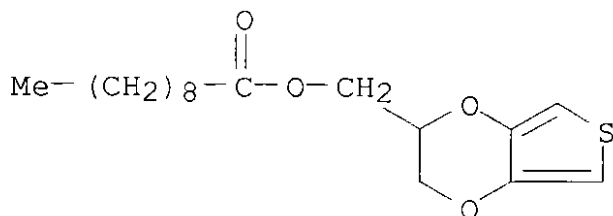
RN 255818-90-7 ZCAPLUS

CN Decanoic acid, (2,3-dihydrothieno[3,4-b]-1,4-dioxin-2-yl)methyl ester, polymer with (2,3-dihydrothieno[3,4-b]-1,4-dioxin-2-yl)methyl 2-propenoate (9CI) (CA INDEX NAME)

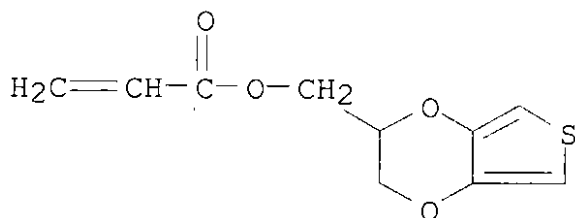
CM 1

CRN 255818-89-4

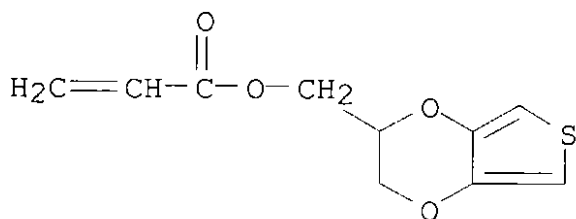
CMF C17 H26 O4 S



CM 2

CRN 255818-88-3
CMF C10 H10 O4 SRN 255818-91-8 ZCAPLUS
CN 2-Propenoic acid, (2,3-dihydrothieno[3,4-b]-1,4-dioxin-2-yl)methyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 255818-88-3
CMF C10 H10 O4 SIT 255818-90-7 255818-91-8
(photolithog. of electroactive polymer films for creation of arbitrary micron-scale patterns)L18 ANSWER 7 OF 9 ZCAPLUS COPYRIGHT 2004 ACS on STN
1999:622917 Document No. 131:337480 Lowering the band gap of ethylenedioxythiophene polymers: cyanovinylene-linked biheterocycles. Thomas, Christopher A.; Reynolds, John R. (Department of Chemistry, Center for Macromolecular Science and Engineering, University of Florida, Gainesville, FL, 32611-7200, USA). ACS Symposium Series, 735(Semiconducting Polymers), 367-373 (English) 1999. CODEN: ACSMC8. ISSN: 0097-6156. Publisher:

American Chemical Society.

AB A method for lowering the band gap of conducting polymers by incorporating donor-acceptor units along a polymer backbone was developed. Polythiophenes were prep'd. using 3,4-ethylenedioxythiophene (EDOT) and cyanovinylene linkages as electron rich and electron poor components, resp., by oxidative electropolymn. followed by charge neutralization. The substitution pattern around the vinyl group was varied resulting in polymers with bandgap of 1.1 - 1.6 eV. The polymers were characterized by cyclic voltammetry and spectroelectrochem.; the low band gap electrochromic polymers are of interest for devices that can switch absorptive/transmissive states.

IT 204905-90-8P 204905-94-2P 204905-99-7P
(prepn. of electroactive cyanovinylene-linked ethylenedioxythiophene polymers with low band gap to attain switchable electrochromism)

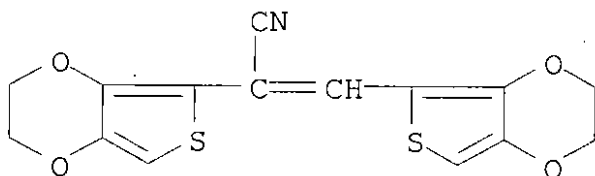
RN 204905-90-8 ZCAPLUS

CN Thieno[3,4-b]-1,4-dioxin-5-acetonitrile, α -[(2,3-dihydrothieno[3,4-b]-1,4-dioxin-5-yl)methylene]-2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 204905-86-2

CMF C15 H11 N O4 S2



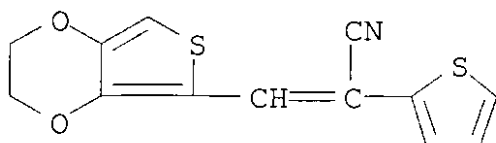
RN 204905-94-2 ZCAPLUS

CN 2-Thiopheneacetonitrile, α -[(2,3-dihydrothieno[3,4-b]-1,4-dioxin-5-yl)methylene]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 204905-93-1

CMF C13 H9 N O2 S2



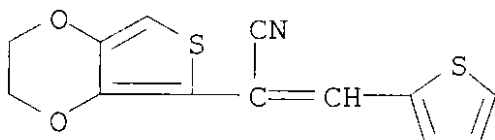
RN 204905-99-7 ZCAPLUS

CN Thieno[3,4-b]-1,4-dioxin-5-acetonitrile, 2,3-dihydro- α -(2-thienylmethylene)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 204905-98-6

CMF C13 H9 N O2 S2



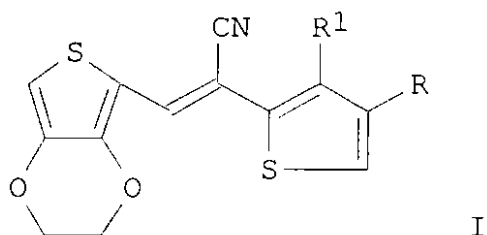
IT 204905-90-8P 204905-94-2P 204905-99-7P

(prepn. of electroactive cyanovinylene-linked ethylenedioxythiophene polymers with low band gap to attain switchable electrochromism)

L18 ANSWER 8 OF 9 ZCAPLUS COPYRIGHT 2004 ACS on STN

1998:289983 Document No. 128:270953 Low Band Gap Cyanovinylene Polymers Based on Ethylenedioxythiophene. Sotzing, Gregory A.; Thomas, Christopher A.; Reynolds, John R.; Steel, Peter J. (Center for Macromolecular Science and Engineering Department of Chemistry, University of Florida, Gainesville, FL, 32611, USA). Macromolecules, 31(11), 3750-3752 (English) 1998. CODEN: MAMOBX. ISSN: 0024-9297. Publisher: American Chemical Society.

GI



AB The synthesis and electrochem. polymn. of 1-cyano-2-[2-(3,4-ethylenedioxythienyl)]vinylene (I, R = R1 = H, II) and 1-cyano-1,2-bis[2-(3,4-ethylenedioxythienyl)]vinylene (I, RR1 = OCH2CH2O, III) are described. II and III undergo facile electrochem. polymn. to provide low-band-gap conducting polymers that are able to be p-doped and reversibly reduced. Poly-II and poly-III have Eg values of 1.3 and 1.1 eV, resp., making them the lowest gap polymers in the family, simultaneously providing stable oxidative doping to the conductive form.

IT **204905-94-2P**
(synthesis and electrochem. polymn. of ethylenedioxythiophenes for low-band-gap cyanovinylene polymers)

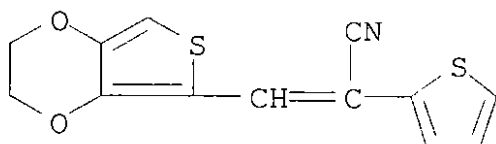
RN 204905-94-2 ZCAPLUS

CN 2-Thiopheneacetonitrile, α -[(2,3-dihydrothieno[3,4-b]-1,4-dioxin-5-yl)methylene]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 204905-93-1

CMF C13 H9 N O2 S2



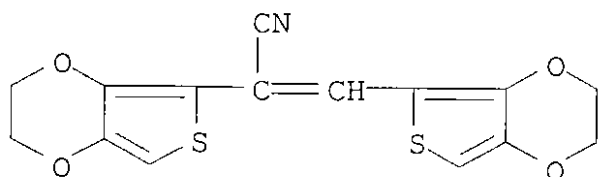
IT **204905-90-8P**
(synthesis and electrochem. polymn. of ethylenedioxythiophenes for low-band-gap cyanovinylene polymers)

RN 204905-90-8 ZCAPLUS

CN Thieno[3,4-b]-1,4-dioxin-5-acetonitrile, α -[(2,3-dihydrothieno[3,4-b]-1,4-dioxin-5-yl)methylene]-2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 204905-86-2
CMF C15 H11 N O4 S2



- IT 204905-94-2P
(synthesis and electrochem. polymn. of ethylenedioxythiophenes for low-band-gap cyanovinylene polymers)
- IT 204905-90-8P
(synthesis and electrochem. polymn. of ethylenedioxythiophenes for low-band-gap cyanovinylene polymers)
- L18 ANSWER 9 OF 9 ZCAPLUS COPYRIGHT 2004 ACS on STN
1998:224263 Document No. 128:244580 Low band gap and n-dopable cyanovinylene based polymers for near IR electrochromic applications. Thomas, Christopher A.; Sotzing, Gregory A.; Reynolds, John R. (Department of Chemistry, Center for Macromolecular Science and Engineering, University of Florida, Gainesville, FL, 32611-7200, USA). Polymer Preprints (American Chemical Society, Division of Polymer Chemistry), 39(1), 173-174 (English) 1998. CODEN: ACPPAY. ISSN: 0032-3934. Publisher: American Chemical Society, Division of Polymer Chemistry.
- AB Low band gap polymers have high visible light transmittivity in the conducting form and show the ability to be both p- and n-doped, allowing all-polymer devices to be constructed where the cathodic electrode is the n-dopable polymer. Polymer compatibility and stability have considerably hampered device development efforts in the past due to the extremely neg. potentials at which conventional polymers n-dope and the different chem. properties of the cathodic polymer compared to the anodic polymer. Four 3,4-ethylenedioxythiophene (EDOT) based cyanovinylene [CNV] polymers were prepd. by electrochem. polymn. of the corresponding monomers,. The polymers have improved electrochromic properties and the BEDOT-CNv polymer has band gap of 1.1 eV. These systems are thermodynamically stable to n-doping in the absence of atm. oxygen. The spectral properties of these polymers make them particularly suitable for near IR (NIR) electrochromic applications in the 1 μ m spectral range.
- IT 204905-90-8P 204905-94-2P 204905-99-7P
(prepn. and stability of low band gap and n-dopable cyanovinylene based polythiophenes for near IR electrochromic applications)

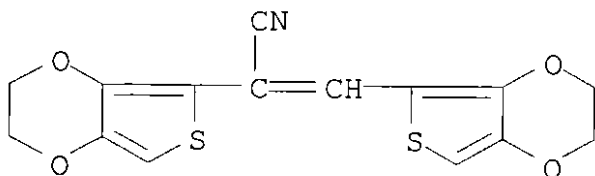
RN 204905-90-8 ZCAPLUS

CN Thieno[3,4-b]-1,4-dioxin-5-acetonitrile, α -[(2,3-dihydrothieno[3,4-b]-1,4-dioxin-5-yl)methylene]-2,3-dihydro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 204905-86-2

CMF C15 H11 N O4 S2



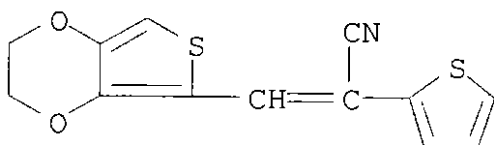
RN 204905-94-2 ZCAPLUS

CN 2-Thiopheneacetonitrile, α -[(2,3-dihydrothieno[3,4-b]-1,4-dioxin-5-yl)methylene]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 204905-93-1

CMF C13 H9 N O2 S2



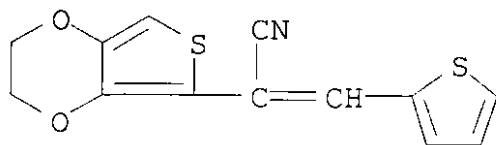
RN 204905-99-7 ZCAPLUS

CN Thieno[3,4-b]-1,4-dioxin-5-acetonitrile, 2,3-dihydro- α -(2-thienylmethylene)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 204905-98-6

CMF C13 H9 N O2 S2



IT 204905-90-8P 204905-94-2P 204905-99-7P

(prepn. and stability of low band gap and n-dopable cyanovinylene based polythiophenes for near IR electrochromic applications)

=> d 121 1-2 cbib abs hitstr hitind

L21 ANSWER 1 OF 2 ZCAPLUS COPYRIGHT 2004 ACS on STN

2002:600243 Document No. 137:279791 Synthesis, Solid-Phase Reaction, and Patterning of Acid-Labile 3,4-Ethylenedioxythiophene-Based Conjugated Polymers. Yu, Jianfei; Holdcroft, Steven (Department of Chemistry, Simon Fraser University, Burnaby, BC, V5A 1S6, Can.). Chemistry of Materials, 14(9), 3705-3714 (English) 2002. CODEN: CMATEX. ISSN: 0897-4756. Publisher: American Chemical Society.

AB 3,4-Ethylenedioxythiophene (EDOT)-based conjugated polymers bearing tetrahydropyranyl side groups were synthesized. These include poly[(3-(2-(2-tetrahydropyranyloxy)ethyl)thiophene)-(3,4-ethylenedioxythiophene)] (PTHPET-EDOT), and poly[(3-(11-(2-tetrahydropyranyloxy)undecyl)thiophene)-(3,4-ethylenedioxythiophene)] (PTHPUDT-EDOT). PTHPUTD-EDOT exhibits an enhanced stability in its oxidized state and a high optical contrast ratio between its reduced and oxidized states. Despite its rigid-rod nature, PTHPUTD-EDOT undergoes an acid catalytic reaction that leads to the cleavage and complete elimination of the tetrahydropyranyl group. The decrease in soly. of the deprotected polymer allows for the deposition of PTHPUTD-EDOT in a spatially controlled fashion using chem. amplified photolithog. and soft lithog.

IT 465531-41-3P 465531-42-4P 465531-45-7P

465531-46-8P

(synthesis, solid-phase reaction, and patterning of acid-Labile 3,4-ethylenedioxythiophene-based conjugated polymers)

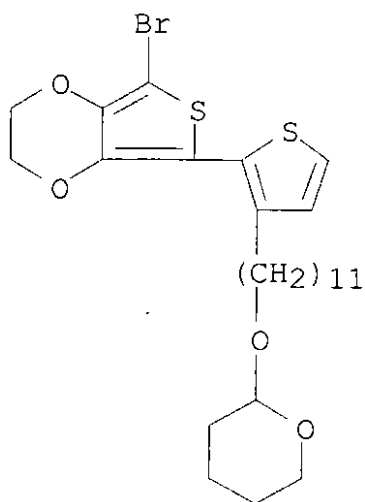
RN 465531-41-3 ZCAPLUS

CN Thieno[3,4-b]-1,4-dioxin, 5-bromo-2,3-dihydro-7-[3-[11-[(tetrahydro-2H-pyran-2-yl)oxy]undecyl]-2-thienyl]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 465531-39-9

CMF C26 H37 Br O4 S2



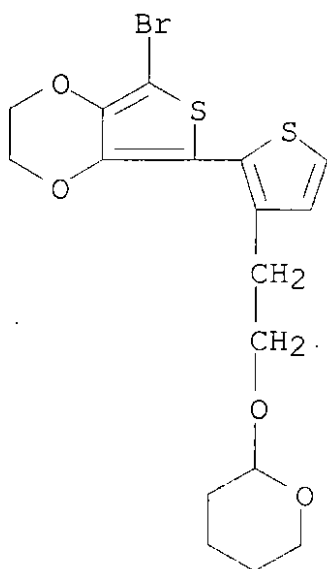
RN 465531-42-4 ZCAPLUS

CN Thieno[3,4-b]-1,4-dioxin, 5-bromo-2,3-dihydro-7-[3-[2-[(tetrahydro-2H-pyran-2-yl)oxy]ethyl]-2-thienyl]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

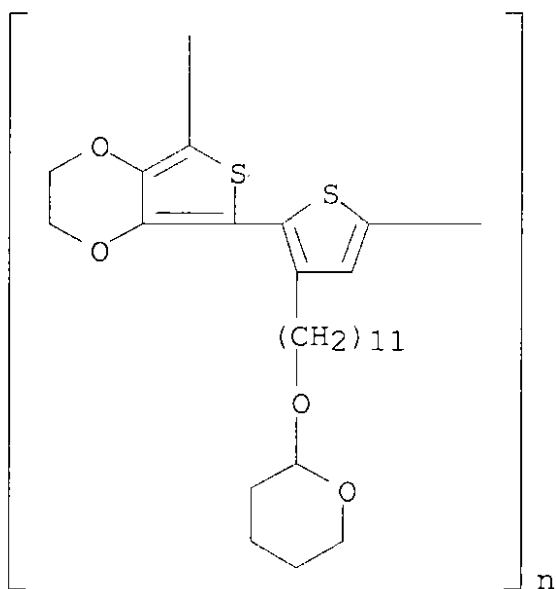
CRN 465531-38-8

CMF C17 H19 Br O4 S2



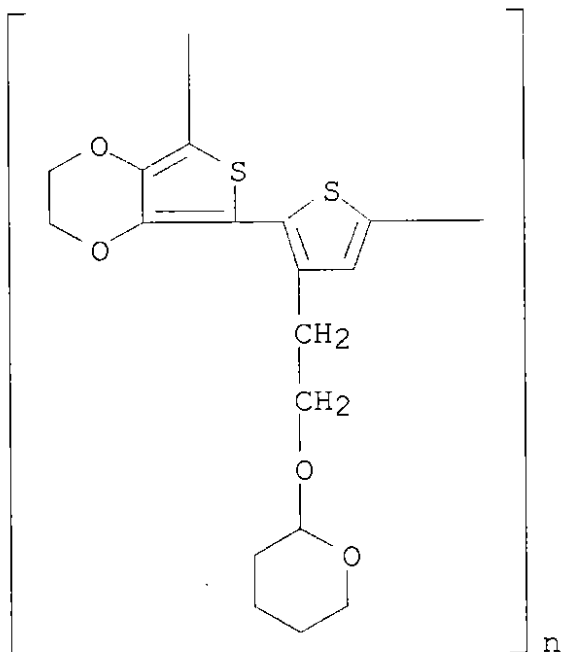
RN 465531-45-7 ZCAPLUS

CN Poly[(2,3-dihydrothieno[3,4-b]-1,4-dioxin-5,7-diyl)[3-[11-
[(tetrahydro-2H-pyran-2-yl)oxy]undecyl]-2,5-thiophenediyl]] (9CI)
(CA INDEX NAME)



RN 465531-46-8 ZCAPLUS

CN Poly[(2,3-dihydrothieno[3,4-b]-1,4-dioxin-5,7-diyl)[3-[2-
[(tetrahydro-2H-pyran-2-yl)oxy]ethyl]-2,5-thiophenediyl]] (9CI) (CA
INDEX NAME)



CC 37-3 (Plastics Manufacture and Processing)

Section cross-reference(s): 74

IT 288066-44-4P 465531-40-2P **465531-41-3P**
465531-42-4P 465531-43-5P 465531-44-6P
465531-45-7P 465531-46-8P

(synthesis, solid-phase reaction, and patterning of acid-Labile
 3,4-ethylenedioxythiophene-based conjugated polymers)

L21 ANSWER 2 OF 2 ZCAPLUS COPYRIGHT 2004 ACS on STN

2001:488385 Document No. 135:264430 Chemically amplified soft

lithography of a low band gap polymer. Yu, Jianfei;

Holdcroft, Steven (Department of Chemistry, Simon Fraser University,
 Burnaby, BC, V5A 1S6, Can.). Chemical Communications (Cambridge,
 United Kingdom) (14), 1274-1275 (English) 2001. CODEN: CHCOFS.

ISSN: 1359-7345. Publisher: Royal Society of Chemistry.

AB A solid state, acid-catalyzed reaction leading to chem. amplified
 soft **lithog.** is demonstrated with a low band gap
 conjugated polymer; poly({3-[11-(tetrahydropyran-2-yloxy)undecyl]-
 2,5-thiophenediyl}-3,4-ethylenedioxy-2,5-thiophenediyl). Chem.
 amplified soft **lithog.** is a non-photolithog. method that
 circumvents photochem. damage. Films are formed prior to patterning
 which may allow for further control of film thickness, morphol. and
 adhesion over other deposition methods. Since the patterned polymer
 is rendered insol., it is possible to deposit multiple layers of
 similar or dissimilar conjugated polymers. Evaluation of patterned
 films in field effect transistors, light-emitting and electrochromic

devices is in progress.

IT 361432-87-3

(acid-catalyzed elimination of dihydropyran from low band-gap conjugated thiophene polymer)

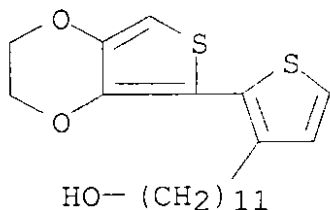
RN 361432-87-3 ZCAPLUS

CN 3-Thiopheneundecanol, 2-(2,3-dihydrothieno[3,4-b]-1,4-dioxin-5-yl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 361432-86-2

CMF C21 H30 O3 S2



IT 361432-85-1P

(chem. amplified soft lithog. of low band-gap thiophene polymer)

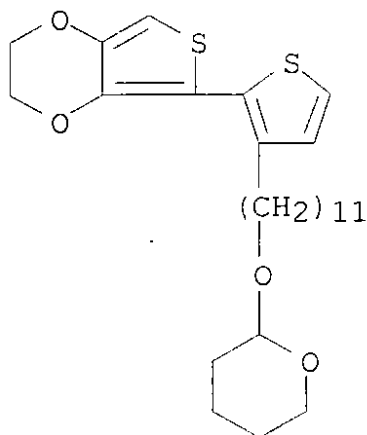
RN 361432-85-1 ZCAPLUS

CN Thieno[3,4-b]-1,4-dioxin, 2,3-dihydro-5-[3-[11-[(tetrahydro-2H-pyran-2-yl)oxy]undecyl]-2-thienyl]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 361432-84-0

CMF C26 H38 O4 S2



- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 76
- IT Electric conductivity
(chem. amplified soft lithog. of low band-gap thiophene polymer)
- IT **Lithography**
(chem. amplified soft; chem. amplified soft lithog. of low band-gap thiophene polymer)
- IT Polymers, processes
(conjugated; chem. amplified soft lithog. of low band-gap thiophene polymer)
- IT 110-87-2 **361432-87-3**
(acid-catalyzed elimination of dihydropyran from low band-gap conjugated thiophene polymer)
- IT **361432-85-1P**
(chem. amplified soft lithog. of low band-gap thiophene polymer)
- IT 1611-56-9, 11-Bromoundecanol
(chem. amplified soft lithog. of low band-gap thiophene polymer synthesized using)
- IT 872-31-1P, 3-Bromothiophene 126213-50-1P 162152-25-2P
361432-84-0P
(chem. amplified soft lithog. of low band-gap thiophene polymer synthesized using)